No. 200200258

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN, FIELD

'PH75K'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifth day of July, in the year two thousand and six.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

☐☐REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Pioneer Hi-Bred International, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

3. VARIETY NAME
PH75K

4. ADDRESS (*Street and No. or RFD No., City, State and Zip Code, and Country*)
7301 NW 62nd Avenue
P.O. Box 85
Johnston, IA 50131-0085

5. TELEPHONE (*include area code*)
515/270-4051

6. FAX (*Include area code*)
515/253-2125

FOR OFFICIAL USE ONLY
PVPO NUMBER
20020025

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (*corporation, partnership, association, etc.*)
Corporation

8. IF INCORPORATED, GIVE STATE OF INCORPORATION)
IOWA

9. DATE OF INCORPORATON
March 5, 1999

FILING DATE
Sept. 10, 2002

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION (FIRST PERSON LISTED WILL RECEIVE ALL PAPERS)
Steven R. Anderson
Research and Product Development
P.O. Box 85
Johnston, IA 50131-0085

FEES RECEIVED
FILING & EXAMINATION FEES: $ 2705.00 DATE 9/10/02
CERTIFICATION FEE: $ 768.00 DATE 4/10/06

11. TELEPHONE (*Include area code*)
515/270-4051

12. FAX (*Include area code*)
515/253-2125

13. E_MAIL
Steven.Anderson@Pioneer.com

14. CROP KIND NAME (*Common name*)
CORN

15 GENUS AND SPECIES NAME OF CROP
Zea Mays

16. FAMILY NAME (*Botanical*)
Gramineae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ Yes ☒ No

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (*Follow Instructions on reverse*)
- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of the Variety
- d. ☐ Exhibit D. Additional Description of the Variety (*Optional*)
- e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☒ Voucher Sample (*2500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository*)
- g. ☒ Filing and Examination Fee ($2,705), made payable to "Treasurer of the United States" (*Mail to Plant Variety Protection Office*))

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act)
☐ YES (If "yes", answer items 20 and 21 below) ☒ NO (If "no", go to item 22)

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☐ YES ☐ NO
IF "YES" WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO
IF "YES" SPECIFY THE? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
Number 1,2,3 etc.
(if additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U.S. OR OTHER COUNTRIES?
☒ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (*Please use space indicated on reverse*)

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (*Please use space indicated on reverse.*)

24. The owner(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and results in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER Steven R Anderson	
NAME (*Please print or type*)		NAME (*Please print or type*) Steven R. Anderson	
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE Research Scientist	DATE 8/27/2002

S&T-470 (04-01)designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (02-99) which is obsolete. (*See reverse for instructions and information collection burden statement*)

INSTRUCTIONS

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GENERAL: To be effectively filed with the Plant Variety protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in a approved public repository; (4) check drawn on a U.S. bank for $2705 ($320 filing fee and $2,385 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 400, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301)504-5518
FAX: (301)504-5291
Homepage: http://www.ams.usda.gov/science/pvp.htm

ITEM

18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified.

18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens of photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

18c. Exhibit C forms are available from the PVPO for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant disease resistance, etc.

18e. Section 52(5) of the Act required applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

19. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of* certified seed), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, applicant may change the choice. *(See Regulations and Rules of Practice, Section 7.103).*

22. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

23. See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date

21. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety ahs been sold, disposed of, transferred, or used in the U>S> or other countries.)

Nov. 1, 2001 United States, Canada

23. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).*

NOTES; It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. http://www.ams.usda.agov/lsg/seed/ls-sd.htm

Exhibit A. Origin and Breeding History

Pedigree: PHAA0/PH77C)XA12K23K53#

Pioneer PH75K, *Zea mays L.*, a dent corn, inbred, was developed by Pioneer Hi-Bred International, Inc. from the single cross hybrid PHAA0 (Certificate No. 9400091) X PH77C (PVP Certificate No. 9700228) using the backcrossing method followed by the pedigree method of plant breeding. Varieties PHAA0 and PHAA0 are proprietary inbred lines of Pioneer Hi-Bred International, Inc. Variety PHAA0 was the recurrent parent. Variety PH77C was the donor parent. After the backcross generation, selfing was practiced for 7 generations using pedigree selection. During line development, crosses were made to inbred testers for the purpose of estimating the line's combining ability. Yield trials were grown at Parndorf, Austria, as well as other Pioneer research locations. After initial testing, additional hybrid combinations have been evaluated and subsequent generations of the line have been grown and hand-pollinated with observations again made for uniformity.

Variety PH75K has shown uniformity and stability for all traits as described in Exhibit C - "Objective Description of Variety". It has been self-pollinated and ear-rowed 7 generations with careful attention paid to selection criteria and uniformity of plant type to assure genetic homozygousity and phenotypic stability. The line has been increased both by hand and in isolated fields with continued observations for uniformity and stability, and for 3 generations during the final stages of inbred development and seed multiplication. Very high standards for genetic purity have been established morphologically using field observations and electrophoretically using sound lab molecular marker methodology.

No variant traits have been observed or are expected in PH75K.

The criteria used in the selection of PH75K were yield, both per se and in hybrid combinations; late season plant health, grain quality, stalk lodging resistance, and kernel size, especially important in production. Other selection criteria include: ability to germinate in adverse conditions; disease and insect resistance; pollen yield and tassel size.

Exhibit A: Developmental history for PH75K

Season/Year Pedigree Grown	Inbreeding Level of Pedigree Grown
April/1994 PHAA0	F0
April/1994 PH77C	F0
Nov/1994 PHAA0/PH77C	F1
April/1995 PHAA0<2PH77C	BC1F1
April/1996 PHAA0<2PH77C)X	BC1F2
Nov/1996 PHAA0<2PH77C)XA1	BC1F3
April/1997 PHAA0<2PH77C)XA12	BC1F4
Nov/1997 PHAA0<2PH77C)XA12K2	BC1F5
April/1998 PHAA0<2PH77C)XA12K23	BC1F6
Nov/1998 PHAA0<2PH77C)XA12K23K5	BC1F7
PHAA0<2PH77C)XA12K23K53#	BC1F8

*PH75K was selfed and ear-rowed from F2 through F8 generation.
#Uniformity and stability were established from F4 through F8 generation and beyond when seed supplies were increased.

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Exhibit B: Novelty Statement

Variety PH75K mostly resembles Pioneer Hi-Bred International, Inc. proprietary inbred line PHAA0 (PVP Certificate No. 9400091). Tables 1A and 1B show two sample t-tests on data collected primarily in Johnston, Ankeny, and Dallas Center, IA. Tables 2A and 2B show two sample t-tests on data collected from the area of adaptation. The traits collectively show measurable differences between the two varieties.

Variety PH75K has more primary tassel branches (4.3 vs 2.1) than variety PHAA0 (Table 1A, 1B). The pictures in Figures 1 support visual differences between varieties.

Variety PH75K has a higher tassel size score (4.3 vs 2.7) than variety PHAA0 (Table 2A, 2B). The pictures in Figure 1 support visual differences between varieties.

JMS 10/30/03

PH75K has a greater husk tightness score (6.2 vs 4.2) than variety PHAA0.

PH75K has a lower ear taper score (1-slight vs 2-average) than variety PHAA0.

PH75K has a higher ear position score (2-horizontal vs 1-upright) than variety PHAA0.

JMS 11/30/05

A standard set of SSR markers were used to genetically profile the inbred PH75K and its parent PHAA0 (see Figure 2 and Table 3 and accompanying text).

Exhibit B: Novelty Statement Tables

Table 1A: Data from Johnston, Ankeny, and Dallas Center, IA broken out by year are supporting evidence for differences between PH75K and PHAA0. A two-sample t-test was used to compare differences between means.

TRAIT	year	variety-1	variety-2	Count-1	Count-2	Mean-1	Mean-2	Mean_Diff	StdDeviation-1	StdDeviation-2	StdError-1	StdError-2	DF_Pooled	t-Value_Pooled	Prob_(1-tail)_Pooled
tassel primary branch (# of primary branches)	2000	PH75K	PHAA0	15	15	4.2	1.9	2.3	1.373	0.516	0.355	0.133	28	6.2	0.000
tassel primary branch (# of primary branches)	2001	PH75K	PHAA0	10	10	3.9	2.1	1.8	1.370	0.568	0.433	0.180	18	3.8	0.001
tassel primary branch (# of primary branches)	2002	PH75K	PHAA0	30	30	4.5	2.3	2.2	0.973	1.088	0.178	0.199	58	8.4	0.000

Table 1B: Summary data from Johnston, Ankeny, and Dallas Center, IA across years and environments are supporting evidence for differences between PH75K and PHAA0. Environments had different planting dates and were in different fields. A two-sample t-test was used to compare differences between means.

TRAIT	variety-1	variety-2	Count-1	Count-2	Mean-1	Mean-2	Mean_Diff	StdDeviation-1	StdDeviation-2	StdError-1	StdError-2	DF_Pooled	t-Value_Pooled	Prob_(2-tail)_Pooled
Tassel primary branch (# of primary branches)	PH75K	PHAA0	55	55	4.3	2.1	2.2	1.171	0.891	0.158	0.120	108	11.0	0.000

Exhibit B: Novelty Statement Tables

Table 2A: Data from area of adaptation broken out by year are supporting evidence for differences between PH75K and PHAA0. A two-sample t-test was used to compare differences between means.

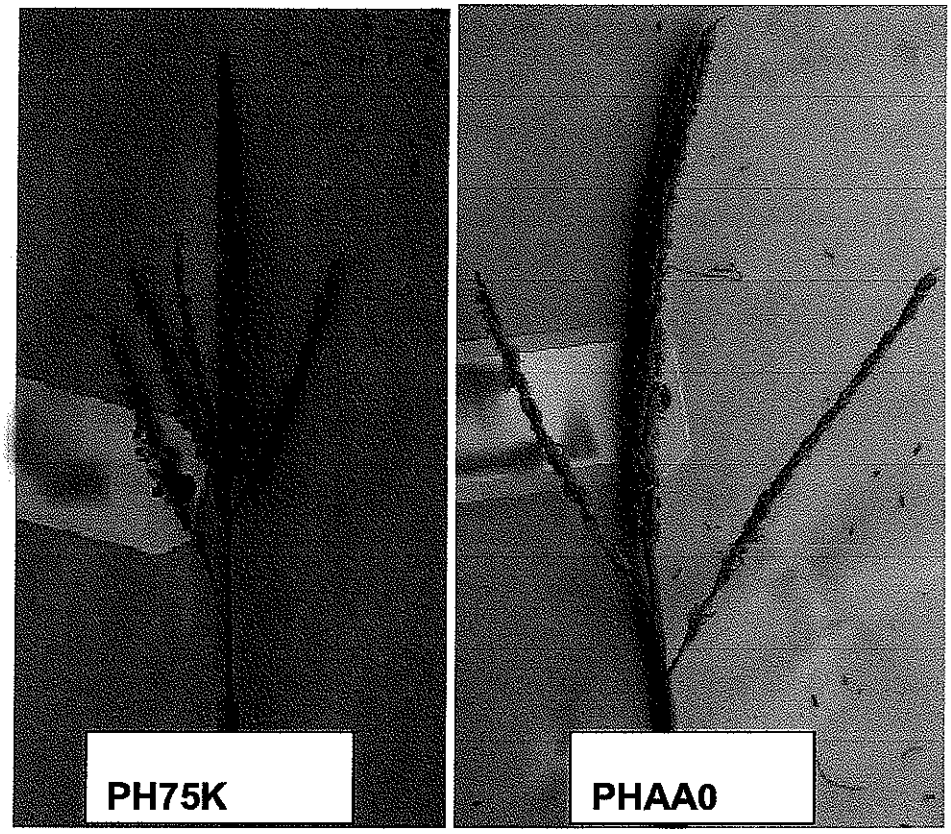
TRAIT	year	variety-1	variety-2	Count-1	Count-2	Mean-1	Mean-2	Mean_Diff	StdDeviation-1	StdDeviation-2	StdError-1	StdError-2	DF_Pooled	t-Value_Pooled	Prob_(1-tail)_Pooled
Tassel size score 1=small : 9=large	1999	PH75K	PHAA0	14	14	4.6	2.8	1.8	0.852	0.893	0.228	0.239	26	5.4	0.000
Tassel size score 1=small : 9=large	2000	PH75K	PHAA0	14	14	4.6	2.4	2.1	0.756	0.514	0.202	0.137	26	8.8	0.000
Tassel size score 1=small : 9=large	2001	PH75K	PHAA0	13	13	3.8	2.8	1.0	0.801	0.801	0.222	0.222	24	3.2	0.004

Table 2B: Summary data across years are supporting evidence for differences between PH75K and PHAA0. A two-sample t-test was used to compare differences between means.

TRAIT	variety-1	variety-2	Count-1	Count-2	Mean-1	Mean-2	Mean_Diff	StdDeviation-1	StdDeviation-2	StdError-1	StdError-2	DF_Pooled	t-Value_Pooled	Prob_(2-tail)_Pooled
Tassel size score 1=small : 9=large	PH75K	PHAA0	41	41	4.3	2.7	1.7	0.855	0.756	0.133	0.118	80	9.3	0.000

Exhibit B. Novelty Statement Figures

Figure 1: Tassel images are supporting evidence for differences in primary tassel branch number and tassel size score between PH75K and PHAA0.



As I indicated in our last correspondence, we are submitting lab SSR molecular marker data to further support our case for distinction. By looking at SSR marker data we can distinguish differences in genotype. Scoring of marker genotype is based on the size of the amplified fragment, which may be measured by the number of base pairs of the fragment. While variation in the primer used or in laboratory procedures can affect the reported number of base pairs, relative values should remain constant regardless of the specific primer or laboratory used. When comparing lines it is preferable if all SSR profiles are performed in the same lab. The SSR analyses reported herein were conducted in-house at Pioneer Hi-Bred.

A standard set of SSR markers were used to genetically profile the inbred PH75K and its parent PHAA0. The genetic profile data showed that for PH75K, a large segment of the genome on chromosome 10 was inherited due to recombination from the other parent rather than the most similar variety PHAA0. This shows that these inbreds are genetically distinct and homozygous for this segment. The segment was over 39 cM long on the published IBM2 Neighbors map (Figure 2). This segment contains at least 3 publicly listed genes (gln1, csu844, crr2) indicating that this chromosome segment is of functional significance. However, this segment undoubtedly contains many other genes, as the maize genome has recently been reported to contain over 59,000 functional genes (http://www.eurekalert.org/pub_releases/2004-10/rtsu-rro101204.php). The total map distance for the IBM2 Neighbors map is 7444 cM. If maize genes were randomly distributed, this would result in approximately 8 genes per cM, and 312 genes in this 39 cM segment. Composite public physical maps can be found at (http://www.maizegdb.org/). The public polymorphic markers that define this distinct segment are listed (Table 3).

Table 3. SSR Marker scores for PH75K and PHAA0 on chromosome 10

SSR Marker	Chromosome Number	Position IBM2 Neighbors Map	PH75K Base Pairs	PHAA0 Base Pairs
BNLG1839	10	466	198	233
BNLG1450	10	484	178	239
BNLG1185	10	506	152	165

Chromosome 10 comparison of PH75K with PHAA0

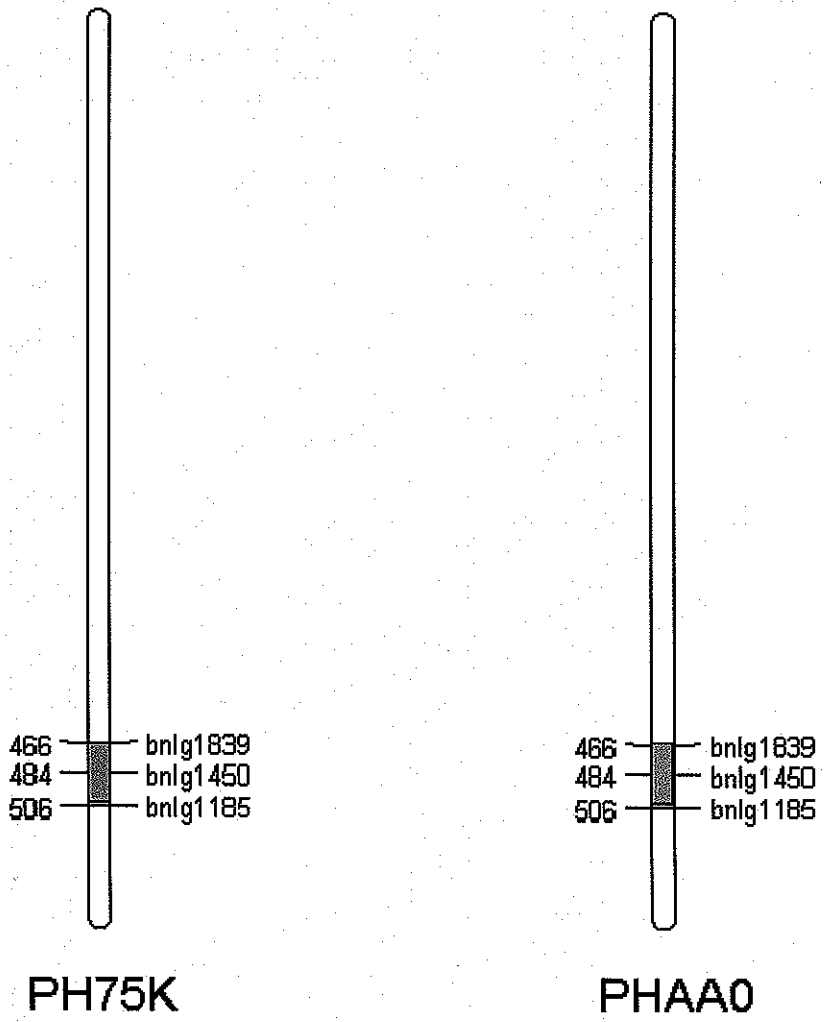


Figure 2. A polymorphic recombination segment on chromosome 10 shows a clear genetic difference between PH75K and the most similar line PHAA0.

Answers to PVP QA questions for accepting DNA fingerprinting differences:

(1) The experimental design or procedures followed are published and cited;

Primers used for the SSRs reported are publicly available and may be found in the Maize GDB using the World Wide Web prefix followed by maizegdb.org (maintained by the USDA Agricultural Research Service), in Sharopova et al. (Plant Mol. Biol. 48(5-6):463-481), Lee et al. (Plant Mol. Biol. 48(5-6); 453-461), (http://www.maizegdb.org/).

The primers for these specific markers are listed:
BNLG1839 http://www.maizegdb.org/cgi-bin/displaylocusrecord.cgi?id=145012
BNLG1450 http://www.maizegdb.org/cgi-bin/displaylocusrecord.cgi?id=144910
BNLG1185 http://www.maizegdb.org/cgi-bin/displaylocusrecord.cgi?id=144839

(2) The experimental design or procedures (or portions there of) can not be confidential;

The Peer reviewed methodology for SSR loci as molecular markers is cited below from this publication:
Smith et al (1997) An evaluation of the utility of SSR loci as molecular markers in maize (Zea mays L.): comparisons with data from RFLPs and pedigree. Theor Appl Genet 95: 163-173

(3) The specific differentiating bands are cited;

Please refer to Table 3 and Figure 2.

(4) Photographic copies [of gels or other results] of scientific publishable quality with sufficient resolution and labeling to resolve the individual bands in question are provided;

We have included an example of the differentiating bands from the electropherogram for marker BNLG1185 (Figure 3).

(5) The procedure is well established and currently acceptable, or if novel, the results are from at least two independent laboratories with the experimental design appearing reliable.

See 1 and 2 above.

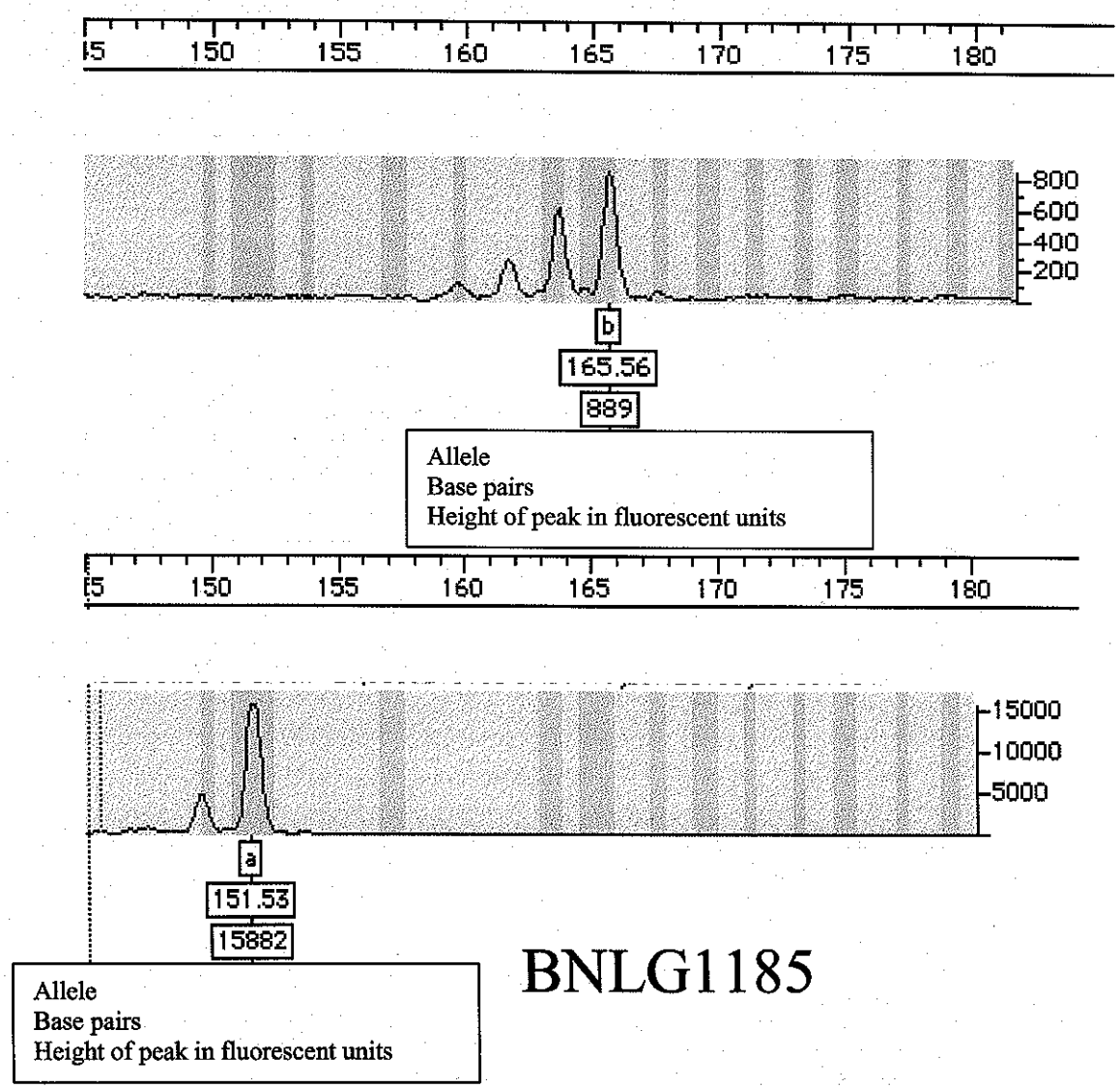


Figure 3. Electropherogram for marker BNLG1185.

Exhibit C
(Corn Maize)

United States Department of Agriculture, Agricultural Marketing Service
Science Division, Plant Variety Protection Office
National Agricultural Library Building, Room 500
Beltsville, MD 20705

Objective Description of Variety
Corn (Zea mays L.)

Name of Applicant (s)	Variety Seed Source	Variety Name or Temporary Designation
Pioneer Hi-Bred International, Inc.		PH75K
Address (Street & No., or RFD No., City, State, Zip Code and Country		FOR OFFICIAL USE
7301 NW 62nd Avenue, P.O. Box 85, **Johnston, Iowa 50131-0085**		PVP0 Number 200200258

Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding Leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Traits designated by an '*' are considered Necessary for an adequate variety description and must be completed.

COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices: describe #25 and #26 in Comments section):

01=Light Green	06=Pale Yellow	11=Pink	16=Pale Purple	21=Buff
02=Medium Green	07=Yellow	12=Light Red	17=Purple	22=Tan
03=Dark Green	08=Yellow Orange	13=Cherry Red	18=Colorless	23=Brown
04=Very Dark Green	09=Salmon	14=Red	19=White	24=Bronze
05=Green-Yellow	10=Pink-Orange	15=Red & White	20=White Capped	25=Variegated (Describe)
				26=Other (Describe)

STANDARD INBRED CHOICES
(Use the most similar (in background and maturity) of these to make comparisons based on **grow-out trial data**):

Yellow Dent Families:		Yellow Dent (Unrelated):	Sweet Corn:
Family	Members	Co109, ND246,	C13, Iowa5125, P39, 2132
B14	CM105, A632, B64, B68	Oh7, T232,	
B37	B37, B76, H84	W117, W153R,	Popcorn:
B73	N192, A679, B73, NC268	W18BN	SG1533, 4722, HP301, HP7211
C103	Mo17, Va102, Va35, A682		
Oh43	A619, MS71, H99, Va26	White Dent:	Pipecorn:
WF9	W64A, A554, A654, Pa91	C166, H105, Ky228	Mo15W, Mo16W, Mo24W

Groups on Lynx/Osborn/Grunst/98-99PVP

EXHIBIT C: PH75K

	Standard Variety Name
1. TYPE: (describe intermediate types in Comments section): 2 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental Dent	CM105
2. REGION WHERE DEVELOPED IN THE U.S.A.: 2 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other	Standard Seed Source AMES 19315

3. MATURITY (In Region of Best Adaptability; show Heat Unit formula in 'Comments' section)

DAYS	HEAT UNITS		DAYS	HEAT UNITS
062	1,164.0	From emergence to 50% of plants in silk	065	1,235.5
063	1,187.3	From emergence to 50% of plants in pollen	064	1,205.0
003	0,073.8	From 10% to 90% pollen shed	003	0,066.7
		From 50% silk to optimum edible quality		
		From 50% silk to harvest at 25% moisture		

4. PLANT:

		Standard Deviation	Sample Size		Standard Deviation	Sample Size
181.5	cm Plant Height (to tassel tip)	10.07	06	173.3	04.13	06
068.8	cm Ear Height (to base of top ear node)	05.00	06	057.5	06.83	06
013.7	cm Length of Top Ear Internode	01.47	06	012.2	02.33	06
0.0	Average Number of Tillers/plant	00.01	06	0.0	00.03	06
0.9	Average Number of Ears per Stalk	00.23	06	0.9	00.11	06
2	Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark 5=Very Dark			4		

5. LEAF:

		Standard Deviation	Sample Size		Standard Deviation	Sample Size
10.6	cm Width of Ear Node Leaf	00.59	06	07.6	00.40	06
67.1	cm Length of Ear Node Leaf	02.78	06	78.4	03.89	06
06	Number of leaves above top ear	00.81	06	06	00.63	06
16	Degrees Leaf Angle (measure from 2nd leaf above ea at anthesis to stalk above leaf)	03.84	06	32	05.41	06
03	Leaf Color (Munsell code) 7.5GY3/4			03	5GY4/4	
1	Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz)			3		
	Marginal Waves (Rate on scale from 1=none to 9=many)					
	Longitudinal Creases (Rate on scale from 1=none to 9=many)					

6. TASSEL:

		Standard Deviation	Sample Size		Standard Deviation	Sample Size
04	Number of Primary Lateral Branches	00.80	06	05	01.64	06
23	Branch Angle from Central Spike	07.53	06	31	08.41	06
46.9	cm Tassel Length (from top leaf collar node to tassel tip)	02.03	06	48.1	03.84	06
5	Pollen Shed (rate on scale from 0=male sterile to 9=heavy shed)			5		
11	Anther Color (Munsell code) 10R6/4			07	5Y9/4	
11	Glume Color (Munsell code) 10RP5/6			01	5GY6/6	
1	Bar Glumes (Glume Bands): 1=Absent 2=Present			1		

Application Variety Data PH75K Page 2 Standard Variety Data

7a. EAR (Unhusked Data):

01	Silk Color (3 days after emergence) (Munsell code)	2.5GY88	07	2.5GY96
03	Fresh Husk Color (25 days after 50% silking) (Munsell code)	5GY58	02	5GY66
21	Dry Husk Color (65 days after 50% silking) (Munsell code)	2.5Y92	21	2.5Y8.54
2	Position of Ear at Dry Husk Stage: 1= Upright 2= Horizontal 3= Pendant		2	
6	Husk Tightness (Rate of Scale from 1=very loose to 9=very tight)		4	
2	Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm)		2	

7b. EAR (Husked Ear Data):

		Standard Deviation	Sample Size		Standard Deviation	Sample Size
12.7	cm Ear Length	01.21	06	13.8	00.75	06
38.2	mm Ear Diameter at mid-point	01.83	06	39.2	01.47	06
099.5	gm Ear Weight	14.38	06	84.7	10.48	06
14	Number of Kernel Rows	00.75	06	13.3	00.52	06
2	Kernel Rows: 1=Indistinct 2=Distinct			2		
2	Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral			1		
12.5	cm Shank Length	03.15	06	10.5	01.76	06
1	Ear Taper: 1=Slight 2= Average 3=Extreme			2		

8. KERNEL (Dried)

		Standard Deviation	Sample Size		Standard Deviation	Sample Size
10.7	mm Kernel Length	00.52	06	09.3	00.52	06
08.2	mm Kernel Width	00.41	06	08.0	00.00	06
04.8	mm Kernel Thickness	00.41	06	04.5	00.55	06
45.2	% Round Kernels (Shape Grade)	24.78	06	50.2	22.38	06
1	Aleurone Color Pattern: 1-Homozygous 2=Segregating	1.25YR 7/14		1		
07	Aluerone Color (Munsell code)	~~1.25Y14~~		07	2.5Y814	
07	Hard Endosperm Color (Munsell code)	10YR612		07	2.5Y814	
03	Endosperm Type: 1=Sweet (Su1) 2=Extra Sweet (sh2) 3=Normal Starch 4=High Amylose Starch 5=Waxy Starch 6=High Protein 7=High Lysine 8=Super Sweet (se) 9=High Oil 10=Other_			3		
30.2	gm Weight per 100 Kernels (unsized sample)	01.72	06	22.67	02.25	06

9. COB:

		Standard Deviation	Sample Size		Standard Deviation	Sample Size
22.2	mm Cob Diameter at mid-point	00.75	06	26.0	01.41	06
14	Cob Color (Munsel code) 10R48			14	10R46	

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10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested; leave Race or Strain Options blank if polygenic):

	A. Leaf Blights, Wilts, and Local Infection Diseases	
	Anthracnose Leaf Blight (Colletotrichum graminicola)	
4	Common Rust (Puccinia sorghi)	4
	Common Smut (Ustilago maydis)	
6	Eyespot (Kabatiella zeae)	7
6	Goss's Wilt (Clavibacter michiganense spp. nebraskense)	8
1	Gray Leaf Spot (Cercospora zeae-maydis)	1
	Helminthosporium Leaf Spot (Bipolaris zeicola) Race ———	
6	Northern Leaf Blight (Exserohilum turcicum) Race ———	4
	Southern Leaf Blight (Bipolaris maydis) Race ———	
	Southern Rust (Puccinia polysora)	
7	Stewart's Wilt (Erwinia stewartii)	7
	Other (Specify) ———	
	B. Systemic Diseases	
	Corn Lethal Necrosis (MCMV and MDMV)	
8	Head Smut (Sphacelotheca reiliana)	9
	Maize Chlorotic Dwarf Virus (MDV)	
	Maize Chlorotic Mottle Virus (MCMV)	
	Maize Dwarf Mosaic Virus (MDMV)	
	Sorghum Downy Mildew of Corn (Peronosclerospora sorghi)	
	Other (Specify) ———	
	C. Stalk Rots	
6	Anthracnose Stalk Rot (Colletotrichum graminicola)	5
	Diplodia Stalk Rot (Stenocarpella maydis)	
	Fusarium Stalk Rot (Fusarium moniliforme)	
	Gibberella Stalk Rot (Gibberella zeae)	
	Other (Specify) ———	
	D. Ear and Kernel Rots	
	Aspergillus Ear and Kernel Rot (Aspergillus flavus)	
	Diplodia Ear Rot (Stenocarpella maydis)	
9	Fusarium Ear and Kernel Rot (Fusarium moniliforme)	8
5	Gibberella Ear Rot (Gibberella zeae)	5
	Other (Specify) ———	

11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); (leave blank if not tested) :

Banks grass Mite (Oligonychus pratensis)	
Corn Worm (Helicoverpa zea)	
Leaf Feeding	
Silk Feeding	
mg larval wt.	
Ear Damage	
Corn Leaf Aphid (Rhopalosiphum maidis)	
Corn Sap Beetle (Carpophilus dimidiatus)	
European Corn Borer (Ostrinia nubilalis)	
1st Generation (Typically Whorl Leaf Feeding)	
2nd Generation (Typically Leaf Sheath-Collar Feeding)	
Stalk Tunneling	
cm tunneled/plant	
Fall Armyworm (Spodoptera fruqiperda)	
Leaf Feeding	
Silk Feeding	
mg larval wt.	
Maize Weevil (Sitophilus zeamaize	
Northern Rootworm (Diabrotica barberi)	
Southern Rootworm (Diabrotica undecimpunctata)	
Southwestern Corn Borer (Diatreaea grandiosella	
Leaf Feeding	
Stalk Tunneling	
cm tunneled/plant	
Two-spotted Spider Mite (Tetranychus urticae)	
Western Rootworm (Diabrotica virgifrea virgifea)	
Other (Specify) ———	

12. AGRONOMIC TRAITS:

4	Staygreen (at 65 days after anthesis) (Rate on a sale from 1=worst to excellent)	2
1.9	% Dropped Ears (at 65 days after anthesis)	0.0
	% Pre-anthesis Brittle Snapping	
	% Pre-anthesis Root Lodging	
55.0	Post-anthesis Root Lodging (at 65 days after anthesis)	26.4
3,924.5	Kg/ha Yield of Inbred Per Se (at 12-13% grainmoisture)	2,118.9

13. MOLECULAR MARKERS: (0=data unavailable; 1=data available but not supplied; 2=data supplied):

1 Isozymes	0 RFLP's	0 RAPD's

COMMENTS (eg. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D):

CLARIFICATION OF DATA IN EXHIBITS B AND C

Please note the data presented in Exhibit B and C, "Objective Description of Variety," are collected primarily at Johnston, Ankeny, and Dallas Center, Iowa. The data in Tables 1A and 1B are from two sample t-tests using data collected in Johnston, Ankeny, and Dallas Center, IA. These traits in exhibit B collectively show distinct differences between the two varieties.

The data collected in exhibit C was collected in 2000 and 2001 for page 1 and 2. There were 3 different planting dates planted for these trials. There are environmental factors that differ from year to year and planting date to planting date. Environmental temperature and precipitation differences during the vegetative and grain fill periods can impact plant and grain traits, and are a source of variability. The environmental conditions described above could result in larger standard deviations. The variation associated with environment to environment is normally higher than the variation associated within locations. Also, the ear and sizing traits can vary depending on how well pollinated the ears are and how consistent the weather is during the grain fill period. I have enclosed a table that shows monthly temperature and precipitation in 2000 and 2001.

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Exhibit C. Temperature and Precipitation differences from Ankeny, IA

TEMPERATURE

YEAR	MAY	JUN	JULY	AUG	AVERAGE
1994	59.8	70.7	71.9	69.0	**67.9**
1995	56.2	69.4	74.3	76.9	**69.2**
1996	56.2	69.3	71.3	70.5	**66.8**
1997	53.5	70.6	74.1	69.6	**67.0**
1998	64.7	66.6	74.8	73.5	**69.9**
1999	60.7	69.7	78.7	70.5	**69.9**
2000	63.5	68.9	73.2	74.2	**70.0**
2001	61.3	69.0	76.7	74.2	**70.3**
2002	57.7	73.5	77.9	71.7	**70.2**

RAINFALL

YEAR	MAY	JUN	JULY	AUG	Total
1994	3.67	5.75	1.71	4.18	**15.31**
1995	5.04	4.19	2.94	2.87	**15.04**
1996	8.47	4.35	2.51	2.14	**17.47**
1997	4.32	3.27	4.10	1.36	**13.05**
1998	6.46	11.07	5.70	4.96	**28.19**
1999	6.46	4.54	4.45	6.55	**21.85**
2000	5.40	5.80	3.16	1.78	**16.14**
2001	5.72	3.87	2.05	1.92	**13.56**
2002	2.91	2.78	5.34	4.00	**15.03**

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U. S. C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)

PIONEER HI-BRED INTERNATIONAL, INC.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

3. VARIETY NAME

PH75K

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*

7301 NW 62nd AVENUE
P.O. BOX 85
JOHNSTON, IA 50131-0085

5. TELEPHONE *(Include area code)*

515-270-4051

6. FAX *(Include area code)*

515-253-2125

7. PVPO NUMBER

200200258

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☒ **YES** ☐ **NO**

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☒ **YES** ☐ **NO**

10. Is the applicant the original owner? ☒ **YES** ☐ **NO** **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ **YES** ☐ **NO** **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☒ **YES** ☐ **NO** **If no, give name of country**

11. Additional explanation on ownership *(If needed, use the reverse for extra space)*:

PH75K is owned by Pioneer Hi-Bred International, Inc.

Pioneer Hi-Bred International, Inc. (PHI), Des Moines, Iowa, and/or its wholly owned subsidiary Pioneer Overseas Corporation (POC), Des Moines, Iowa, is the employer of the plant breeders involved in the selection and development of PH75K. Pioneer Hi-Bred International and/or Pioneer Overseas Corporation has the sole rights and ownership of PH75K pursuant to written contracts that assign all rights in the variety to PHI and/or POC at the time such variety was created. No rights to this variety are retained by any individuals.

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PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.